

MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV

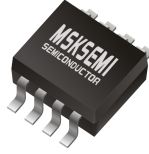


GDT

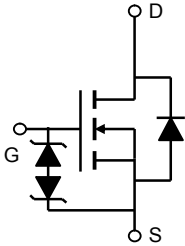
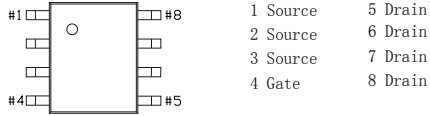


PLED

Product data sheet



SOP-8



Features

- $V_{DS} (V) = 40V$
- $I_D = 14 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 13.0m \Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 16.5m \Omega (V_{GS} = 4.5V)$

Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	40	V	
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current	I_D	$T_A=25^\circ C$	14	A
		$T_A=70^\circ C$	10	
Pulsed Drain Current	I_{DM}	70		
Avalanche Current	I_{AR}	30		
Repetitive Avalanche Energy	$L=0.3mH$	E_{AR}	135	mJ
Power Dissipation	P_D	$T_A=25^\circ C$	3.1	W
		$T_A=70^\circ C$	2	
Thermal Resistance.Junction- to-Ambient	R_{thJA}	$t \leq 10s$	40	$^\circ C/W$
		Steady-State	75	
Thermal Resistance.Junction- to-Lead	R_{thJL}	24		
Junction Temperature	T_J	150	$^\circ C$	
Storage Temperature Range	T_{stg}	-55 to 150		

Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μ A, V _{GS} =0V	40			V	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =32V, V _{GS} =0V			1	μA	
		V _{DS} =32V, V _{GS} =0V, T _J =55°C			5		
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	μA	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1		3	V	
Static Drain-Source On-Resistance	R _{Ds(on)}	V _{GS} =10V, I _D =14A			11.5	mΩ	
		V _{GS} =10V, I _D =14A T _J =125°C		13			
		V _{GS} =4.5V, I _D =5A			16.5		
On State Drain Current	I _{D(ON)}	V _{GS} =10V, V _{DS} =5V	70			A	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =5A	50			S	
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =20V, f=1MHz		1600	1920	pF	
Output Capacitance	C _{oss}			320			
Reverse Transfer Capacitance	C _{rss}			100			
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz		3.4		Ω	
Total Gate Charge (10V)	Q _g	V _{GS} =10V, V _{DS} =20V, I _D =14A		22		nC	
Total Gate Charge (4.5V)				10.5			
Gate Source Charge			Q _{gs}		4.2		
Gate Drain Charge			Q _{gd}		4.8		
Turn-On DelayTime	t _{d(on)}	V _{GS} =10V, V _{DS} =20V, R _L =1.5Ω, R _{GEN} =3Ω		3.5		ns	
Turn-On Rise Time	t _r			6			
Turn-Off DelayTime	t _{d(off)}			13.2			
Turn-Off Fall Time	t _f			3.5			
Body Diode Reverse Recovery Time	t _{rr}	I _F = 14A, di/dt= 100A/us		31		nC	
Body Diode Reverse Recovery Charge	Q _{rr}			33			
Maximum Body-Diode Continuous Current	I _S				4	A	
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V			1	V	

Note : The static characteristics in Figures 1 to 6 are obtained using <300 us pulses, duty cycle 0.5% max.

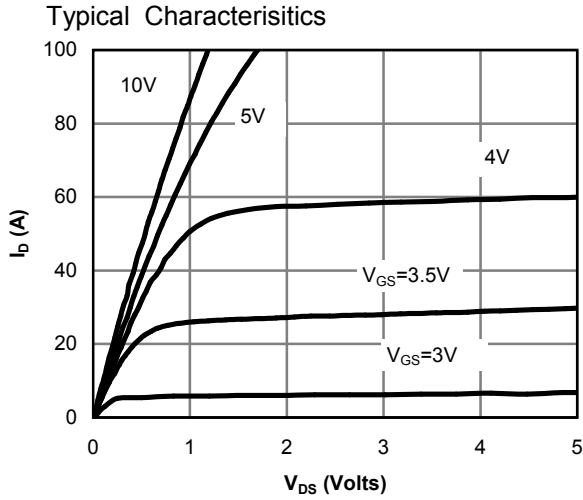


Figure 1: On-Region Characteristics

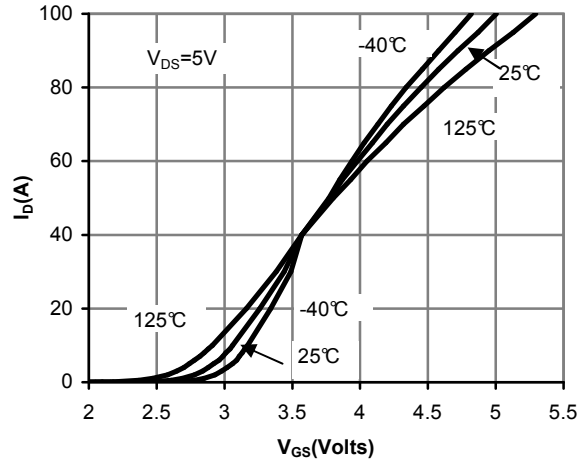


Figure 2: Transfer Characteristics

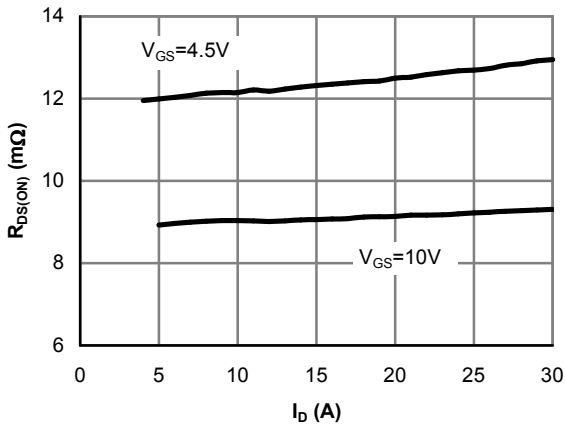


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

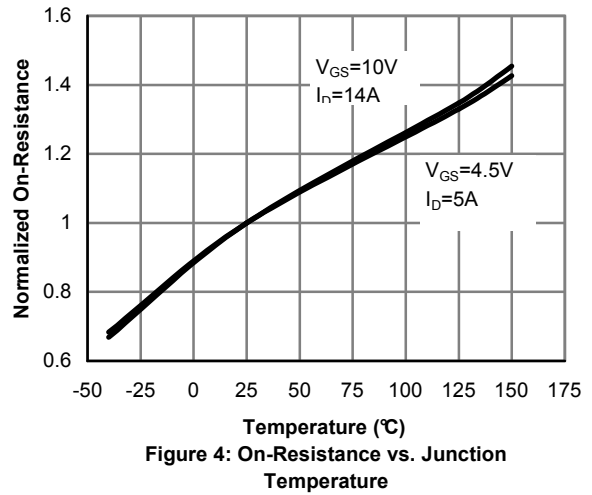


Figure 4: On-Resistance vs. Junction Temperature

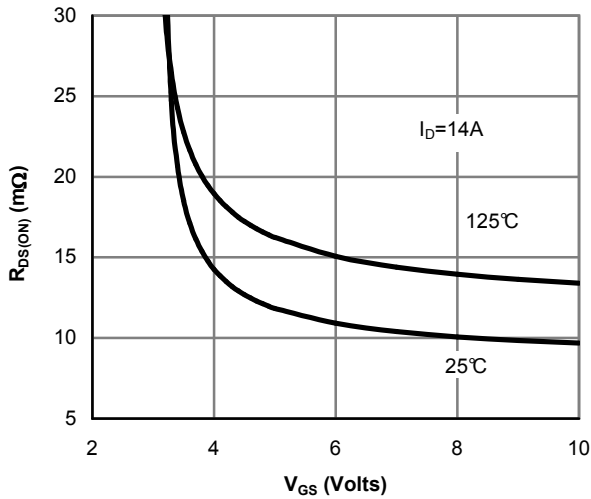


Figure 5: On-Resistance vs. Gate-Source Voltage

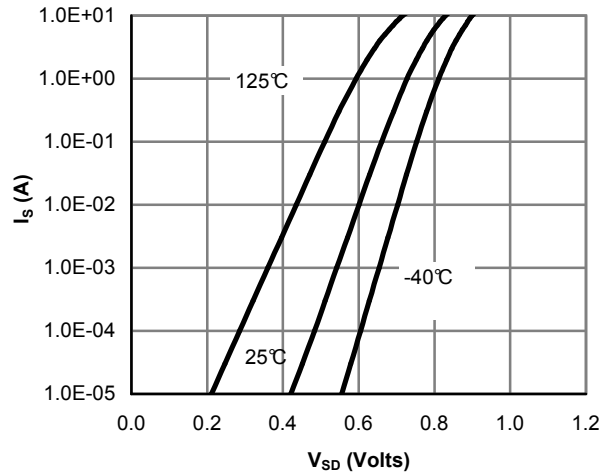


Figure 6: Body-Diode Characteristics

Typical Characteristics

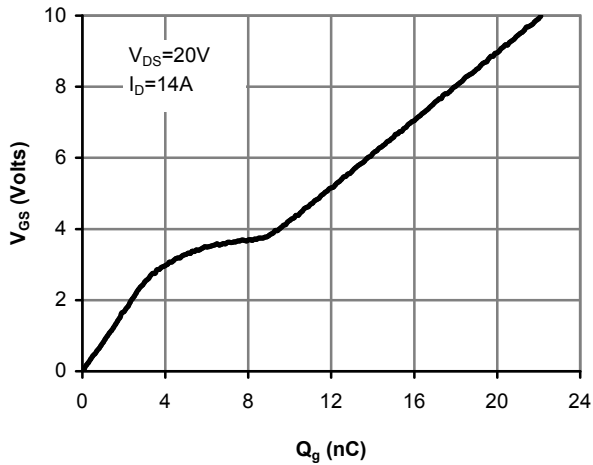


Figure 7: Gate-Charge Characteristics

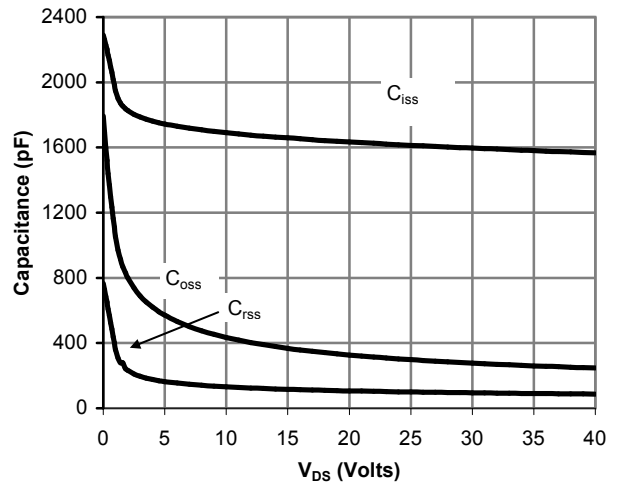


Figure 8: Capacitance Characteristics

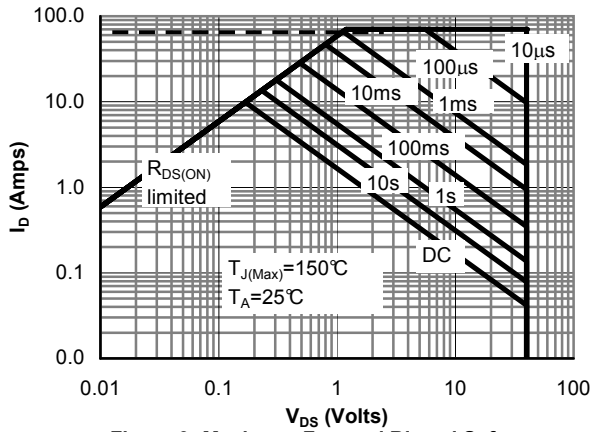


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

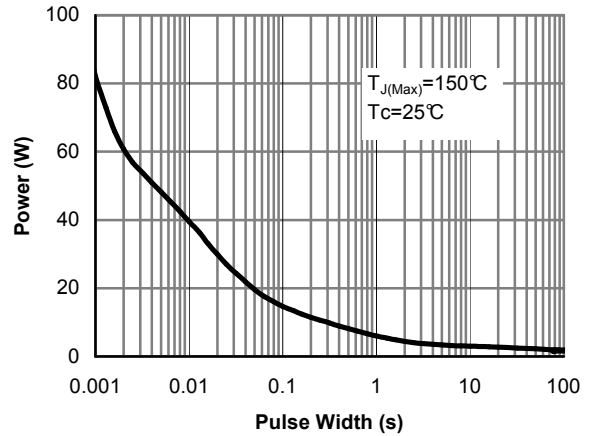


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

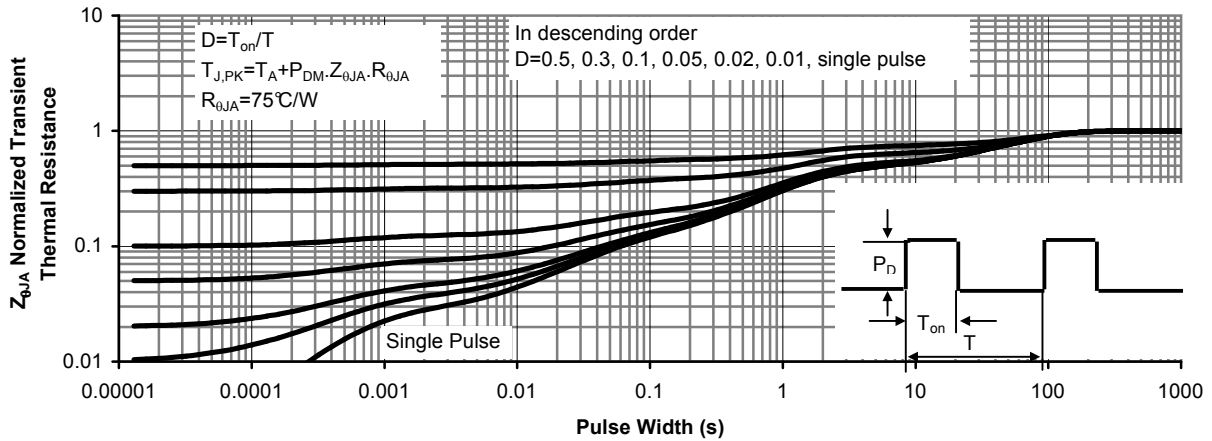
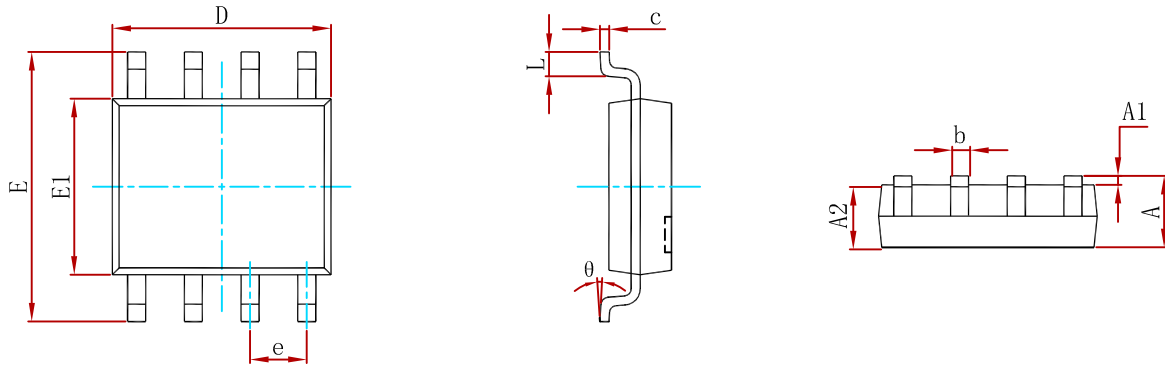


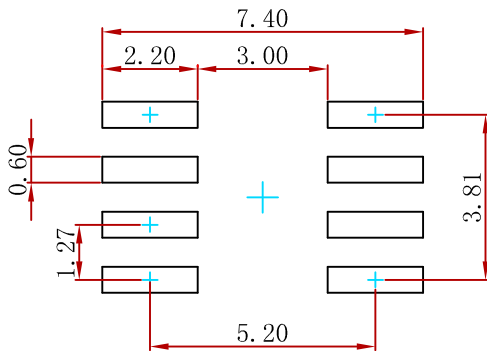
Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

Suggested Pad Layout



Note:
 1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.05mm.
 3. The pad layout is for reference purposes only.

REEL SPECIFICATION

P/N	PKG	QTY
AO4480-MS	SOP-8	3000

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